

SCALABLE THERMAL CONTROL SYSTEM
FOR SPACECRAFT MOUNTED
INSTRUMENTATION

Abstract of the Disclosure

[35] A spacecraft instrument thermal control method and system providing scalable thermal control of on-board instrument temperature. Adapted for a spacecraft with bus supporting instrumentation and thermal radiator panels, cooling is carried out by one or more active coolers, such as cryocoolers, each mounted to the spacecraft at a radiator spatially separated from the instrument, with cold side of the cooler being thermally coupled to an instrument focal plane or other instrument location requiring cryogenic cooling and the warm side coupled to the radiator. A closed loop temperature control system measures the temperature of the controlled portion of the instrument, and adjusts active cooler drive signals to maintain a specified set point temperature.